TUMOR TISSUE MICROARRAYS FOR RAPID MOLECULAR PROFILING

ABSTRACT OF THE DISCLOSURE

An array-based technology facilitates rapid correlated gene copy number and expression profiling of very large numbers of human tumors. Hundreds of cylindrical tissue biopsies (diameter 0.6 mm) from morphologically representative regions of individual tumors can be arrayed in a single paraffin block. Consecutive sections from such arrays provide targets for parallel in situ visualization and quantitation of DNA, RNA or protein targets. For example, amplifications of six loci (mybL2, erbB2, Cyclin-D1, myc, 17q23 and 20q13) were rapidly determined by fluorescence in situ hybridization from 372 ethanol-fixed breast cancers. Stratification of tumors by estrogen receptor and p53 expression data revealed distinct patterns of gene amplification in the various subgroups of breast cancer that may have prognostic utility. The tissue array technology is useful in the rapid molecular profiling of hundreds of normal and pathological tissue specimens or cultured cells.